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THE

Journal of the Society of Arts,

AND OF

THE INSTITUTIONS IN UNION.

111th Session.] FRIDAY, SEPTEMBER 1, 1865. [No. 667. Vol. XIII.

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Announcements by the Council.

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Examinations for 1866.

The Programme of Examinations for 1866 is now published, and may be had gratis, on application to the Secretary. A copy has been forwarded to each Institution and Local Board.

Proceedings of Institutions.

◆

Hyde Mechanics' Institution.—The thirteenth annual report says that during the year more than 200 useful works have been added to the library. The Hyde Book Club has again proved a useful feeder to this library, and has contributed its quota towards enlargement, whilst the remainder have been added by private gifts, or by purchase. The collection now approaches 1,900. A new catalogue has been compiled at some considerable trouble and expense. The last report recorded an increase of 50 per cent. in the number of members of the Hyde Book Club; notwithstanding the improvement, however, it was resolved to completely alter the system of management. It has been arranged to abolish the rotation of books, and to establish a book store at the Mechanics' Institution library; to allow members to make their exchanges there at pleasure; to consult the whole of the club as to the choice of books; to issue a quarterly list; and to connect the club with Mudie's Library, so as to have constantly in circulation a proportion of the very newest works. The new plan has resulted in an addition of 25 per cent. of new members. The Elementary Classes have not quite kept up to the numbers and receipts attained to the previous year, which was a nearly four-fold increase upon the preceding one. The attendance has been somewhat interfered with by the precarious nature of trade in the district, and by the opening of several rival classes. French and German Classes have been opened, and the attendance, though small, is very regular. The lecture course has been on the whole well attended and successful, and the committee having charge of this section have been enabled to hand over a surplus to the Institution funds of nearly £18. Encouraged by the support given to the first flower show, the directors resolved to hold a second, upon a more liberal plan. The exhibition resulted, however, in a small loss to the Institution. The success of the day school has been satisfactory. There has been a steady increase in the numbers, and the receipts paid by the teacher for accommodation prove a small auxiliary to the funds of the Institution. The efforts made by the directors to establish annual flower shows of a superior character, have led to the formation of a "Cottage Gardeners' Association" in connection with the Institution, and a considerable number of members have been enrolled. Besides paying off a small debt, due to the treasurer at the commencement of the year, of £6 1s. 2½d., the directors have been enabled to meet the various charges of the year, to extend the working of several of the departments of the Institution, and to announce a balance in the hands of the treasurer of £24 11s. 3d., the income having been £250 18s. 5d.

EXAMINATION PAPERS, 1865.

(*Continued from page* 638.)

The following are the Examination Papers set in the various subjects at the Society's Final Examinations, held in April, 1865:—

FRENCH.

THREE HOURS ALLOWED.

Part I.

Candidates for a Third-class Certificate are requested to translate into English the following extract, and to answer the grammatical questions thereto annexed, in the order in which they are placed. This first Part is all that will be expected of them.

Translate into English:—

L'Ermite Pierre traversa l'Italie, passa les Alpes, parcourut la France et la plus grande partie de l'Europe, embrasant tous les cœurs du zèle dont il était dévoré. Il voyageait monté sur une mule, un crucifix à la main, les pieds nus, la tête découverte, le corps ceint d'une grosse corde, couvert d'un long froc et d'un manteau de l'étoffe la plus grossière. La singularité de ses vêtements était un spectacle pour le peuple; l'austérité de ses mœurs, sa charité, la morale qu'il prêchait, le faisaient révérer comme un saint.

Il allait de ville en ville, de province en province, implorant le courage des uns, la piété des autres; tantôt il se montrait dans la chaire des églises, tantôt *il* prêchait dans les chemins et sur les places publiques. Son éloquence était vive et emportée, remplie d'apostrophes véhémentes qui entraînaient la multitude. Il rappelait la profanation des saints lieux et le sang des Chrétiens versé par torrents dans les rues de Jérusalem; il invoquait tour à tour le ciel, les saints, les anges, qu'il prenait à témoin de la vérité de ses récits; il s'adressait à la montagne de Sion, à la roche du Calvaire, au mont des Oliviers, qu'il faisait retentir de sanglots et de gémissements. Quand il ne trouvait plus de paroles pour peindre les malheurs des fidèles, il montrait aux assistants le crucifix qu'il portait avec lui; tantôt il se frappait la poitrine et se meurtrissait le sein, tantôt il versait un torrent de larmes.

Le peuple se pressait en foule sur les traces de Pierre. Le prédicateur de la guerre sainte était partout reçu comme un envoyé de Dieu; on s'estimait heureux de toucher ses vêtements; le poil arraché à la mule qu'il montait était conservé comme une sainte relique. A sa voix les différends s'apaisaient dans les familles, les pauvres étaient secourus. la débauche rougissait de ses excès; on ne parlait que des vertus de l'éloquent cénobite; on racontait ses austérités et ses miracles; on répétait ses discours à ceux qui ne les avaient point entendus et qui n'avaient pu s'édifier par sa présence.

Michaud, "*Histoire des Croisades.*"

1. Parse the first two sentences of the above extract.

2. Write the five primitive tenses of all the verbs contained above, each verb to be given in a separate line.

3. Put the article and a suitable epithet before each of the following nouns, so as to show its gender:—*Exercice, zèle, arbre, feuillage, dent, rage, peur, tonnerre, nef, crépuscule.*

4. Give the adjective that corresponds to each of these substantives which occur in the extract:—*Cœur, main, corps, singularité, austérité, mœurs, ville, province, courage, piété, église, lieu, sang, ciel, ange, guerre, poil, voix, excès, vertu, miracle.*

5. What remark does the spelling of *voyageait* suggest (4th line of the extract)?

6. What peculiarities of orthography are there in the conjugation of such verbs as *avancer, essayer, révéler, appeler, rejeter ?*

7. *Les pieds nus* (4th and 5th lines). There is another way of expressing *bare-footed* in French. State how this other construction affects the article and the spelling of *nus.* To what other adjective does the same rule apply ?

8. Explain the spelling of the past participle *entendus* in the last line but one.

9. *Le poil arraché à la mule,* &c. The preposition *à* will here be rendered by "from." Can you name other verbs after which the preposition *à* is thus used, instead of *de ?*

10. *Les différends s'apaisaient dans les familles* (sixth line from the end). Show by several similar examples how much more frequently the reflective voice is used in French than in English.

11. Write, with all their variations of form, according to gender and number, the words which correspond in French to *my, thy, his, her, its, our, your, their ; mine, thine, his, hers, its, ours, yours, theirs.*

12. Give, with suitable examples, *any three* important rules on the syntax of the verb in French, comparing or contrasting that language with your own as much as possible.

13. Write the French names of:—1. The most common animals, domestic and others; 2. Flowers and vegetables; 3. Trees and fruits; 4. The principal pieces of furniture of a house; 5. The most common metals and minerals.

14. Conjugate the preterit, the imperative, and present subjunctive of the verbs *devenir, se repentir, se prévaloir,* and *mettre.*

Part II.

Candidates for a Second-class Certificate are to answer the questions Nos. 9, 10, 11, and 12 in Part I., together with those in Part II., and to translate the English extract and idiomatic expressions which follow.

1. What is the exact purpose of the pronoun *vous* in the following quotation?

Maint estafier accourt; on *vous* happe notre homme,
On *vous* l'échine, on *vous* l'assomme.

La Fontaine.

2. Explain and correct the mistake in the following construction of the pronoun:—Il n'entendra pas raison, il n'a jamais voulu *l'*entendre. Si vous voulez qu'on vous rende justice, rendez-*la* aux autres.

3. Give, with examples, all the rules for the use of the subjunctive mood in French.

4. What is the difference of meaning implied by the difference of spelling in these two expressions?

Le peu de bonté qu'il m'a *montré*......
Le peu de bonté qu'il m'a *montrée*......

Complete the sentence in each case.

Translation:—

As Sir Roger is landlord to the whole congregation, he keeps them in very good order, and will suffer nobody to sleep in it besides himself; for if by chance he has been surprised into a short nap at sermon, upon recovering out of it he stands up and looks about him, and if he sees anybody else nodding, either wakes them himself, or sends his servants to them. Several other of the old knight's particularities break out upon these occasions. Sometimes he will be lengthening out a verse in the singing Psalms half a minute after the rest of the congregation have done with it; sometimes, when he is pleased with the matter of his devotion, he pronounces "Amen" three or four times to the same prayer; and sometimes stands up, when everybody else is upon his knees, to count the congregation, or see if any of his tenants are missing. This authority of the knight, though exerted in that odd manner which accompanies him in all circumstances of life, has a very good effect upon the parish, who are not polite enough to see anything ridiculous in his behaviour; besides that, the general good sense and worthiness of his character make his friends observe these little singularities as foils, that rather set off than blemish his good qualities. As soon as the sermon is finished, nobody presumes to stir till Sir Roger is gone out of the church. The knight walks down from his seat in the chancel between a double row of his tenants, that stand bowing to him on each side, and every now and then inquires how such a one's wife, or mother, or son, or father do, whom he does not see at church; which is understood as a secret reprimand to the person that is absent. Addison.

Idioms:—

1. Tenez-le vous pour dit.
2. Il ne sait où donner de la tête.
3. Il nage entre deux eaux.
4. Je n'ai pas mes coudées franches.
5. Ils travaillent à qui mieux mieux.
6. On lui a coupé l'herbe sous le pied.
7. Poussez-leur l'épée dans les reins.
8. Vous n'y allez pas de main-morte.
9. J'en ai de reste.
10. Nous sommes logés à la même enseign
11. Prenez la balle au bond.
12. Je suis des vôtres.

Part III.

Candidates for a First-class Certificate are expected to translate the above idioms and the extract (down to "are missing" only), and to answer, *in French,* the grammatical questions Nos. 1, 2, and 4 (Part II.), as also the following:—

Literature.—1. State what you know of either Rollin or Bayle.

2. Give a short account of any one work of Fénelon, Massillon, or Louis Racine.

History.—Write a *résumé* of the last fifteen years of the reign of Louis XIV.; or, if you prefer it, dwell at some length upon any one important event of that period.

(*To be continued.*)

MUSICAL FETE AT DRESDEN.

During the early part of the week ending 29 July last, the town of Dresden was thrown into a state of excitement by a "Sänger Fest," or Monster Choral Meeting, of a magnitude unprecedented in this or perhaps in any other country. A building somewhat resembling in style those that have been raised of late years in England and elsewhere for industrial exhibitions, and capable of containing about 26,000 persons, had been constructed, on purpose for the occasion, on the right bank of the Elbe, about a mile from the town. Being intended for a music hall, it was built of wood, and the interior was decorated with paintings and transparencies illustrative of German history and art. Nearly one-half of the ground-floor was occupied by the orchestra, calculated to contain 12,000 singers, besides the instrumental performers, the remainder of the space being left to the audience, for the upper classes of which were also galleries, which ran round the greater part of the building. The exits and entrances, as well as the ventilation, were admirably managed, so that, notwithstanding the heat of the weather, little inconvenience was felt from it, as any spectator who wished to go into the open air could easily do so from any part of the building. The singers, who were to take a part in this great national festival had been invited from every clime and region where Germans are to be found. Each of these choral bands was preceded in the great procession by a silk banner, showing whence they came; and on these might be read, not only countries like Hungary, Schleswig-Holstein, and others bordering on Germany, but Australia, New York, Cincinnati, and even China.

All these choral societies had been supplied with the music and parts which they were expected to sing, and thus, as they came prepared, it was not so impracticable as might have been expected for the conductor to direct the vocalization of this monster chorus.

On Monday, which was the great day of the Festival, the singers assembled under their respective banners in a central place in the town, near the residence of the Minister, M. de Beust, and thence they walked eight abreast in procession through the principal streets and over the bridge to the great Music Hall. The streets were admirably kept, no carriage being allowed in those through which the procession passed, and some idea of their numbers may be formed from the fact that, although marching quick step, and with little incidental interruption, the procession occupied four hours and a half in filing past. Notwithstanding the cheers and the flowers with which they were greeted from almost every window under which they passed, and the more substantial solace of beer offered them from many an open door, the greater part of them must have been greatly oppressed with heat, dust, and fatigue before they reached the Music Hall. Nevertheless they sang lustily through the evening, and the effect of some of the National German ballads, sung by eleven or twelve thousand voices in chorus will not easily be forgotten by any one present who had any feeling for music.

PARIS UNIVERSAL EXHIBITION OF 1867.

The Imperial Commission has issued a series of regulations concerning the important section of the Exhibition which is devoted to objects specially connected with the amelioration of the physical and moral condition of the population—such as, the means and methods of infant education: books, and other means, for adult and family education; economic furniture, clothing, and articles of food; popular and working costumes; cheap habitations; implements, tools, processes, &c. These regulations only apply to French exhibitors, but they furnish hints for all the world.

Seven committees have been formed for the admission of objects in this section; and five of these committees are charged, moreover, with the task of arranging a preparatory exhibition, which is to take place in the Palais de l'Industrie, in the Champs Elysées, but will not be open to the public.

The whole of the expenses of arrangement will, in the case of this preparatory exhibition, be borne by the Imperial Commission. No articles will be admitted to this section of the French portion of the Universal Exhibition but such as have been previously received into the preliminary exhibition, but objects which, on account of their weight, size, or other circumstances, are difficult to transport, will be examined by the committee, or its delegates, at the producer's house.

Measures of this character tend greatly to produce that completeness for which the French exhibitions are already remarkable; and it is certainly the duty of every nation to consider how the most complete collection may be made in each of its sections and classes. From the very nature of some articles such preliminary exhibitions would be next to impossible, and comparatively useless, if practicable, while in others, the position of this country, amongst exhibiting nations, will depend in a great measure on the soundness of the preliminary steps that may be taken. There have been many admirable local exhibitions of late in England, and it is worth consideration whether the intervening time might not be well occupied by preliminary exhibitions of various kinds, for it is not the country that sends the largest amount of contributions, but that which sends the choicest and best arranged collection, which will make the best figure. A superabundance of objects diverts the attention from the most important amongst them; while a well-conceived and well executed plan sets everything off to the best possible advantage.

England has a year before her for preparation; her resources are immense, and she ought to make the most of the opportunity, and show the world in 1867 that her skill, science, and art have been advancing with her trade and commerce.

The Imperial Commission has adopted a different system for its working than that which has hitherto been employed on such occasions in France; the central administration only employs at present between twenty and thirty persons, and much, of the preliminary work at least, will be done by local and special committees. Ninety-five committees, or juries of admission, corresponding with the number of classes in the arrangement adopted, have been appointed to receive and consider the applications for space. These committees consist principally of men of science, artists and manufacturers, with whom a few officials and men of letters are associated, and they form together a body of four hundred persons well and honourably known to the public. In each department of the empire also a committee has been formed to aid the Imperial Commission with its local influence. These arrangements, together with the guarantee fund, give to the coming Exhibition more of a national character than its predecessors, and there is no doubt that the effect will be salutary.

There is another project spoken of which also indicates a tendency towards decentralization. It is said that it is not proposed to establish a general system of supplying motive power, but to make the motors themselves, with their appurtenances, a portion of the Exhibition. This has already been done, partially, at previous exhibitions; but the Imperial Commission contemplates its general application. The plan spoken of is to divide the machinery gallery into sixteen sections, and to entrust the supply of the necessary power to those who offer the most advantageous terms.

The Champ de Mars, where the building for the Exhibition is to be erected, is now being fenced in, and the drainage commenced. The outline plan of the building and its arrangements has appeared, and seems to meet with general approval. The building itself is to be of an obtuse ovoid form, the centre being occupied by a garden, and the various groups and sections of the Exhibition being ranged round in zones, the fine arts occupying the place next the central garden and the machinery the outer zone. Each country will occupy a space enclosed by radii of the oval, the distance between which will of course be regulated by the amount of contributions. The building will occupy only the central portion of the

Champ de Mars; the rest of the ground is to be planted as a park, enclosing the buildings for the exhibition of cattle, model cottages, and other things requiring much space. But the building itself will be brought into direct communication with the main roads which pass near it, and also with the river, by means of broad covered ways on the line of the main axis of the building, so that in case of bad weather the public will be under shelter from the extreme limits of the Exhibition. This will be a great convenience, especially to ladies, children, and invalids.

ON THE COMMERCIAL USE OF FLOWERS.

By EUGENE RIMMEL.

(Author of the "Book of Perfumes," &c.)

The following lecture, illustrated with practical experiments, was delivered before the Royal Horticultural Society on the 27th of July:—

Flowers are a source of pleasure and gratification to all, be they learned or ignorant; to many they offer particular attractions as an object of cultivation and study; for a few only they possess considerable importance as an article of commerce. It is on this point of view alone that I shall have the pleasure of addressing you to-day.

We are all led by a natural instinct to enjoy the pleasant odours diffused by fragrant flowers and plants. The humble floweret which blooms wild in the plain or on the mountain shares equally with its prouder sister which ornaments our garden the privilege of embalming the air, and of creating on our minds a cheerful impression. This charm, however, is of short duration; the flower soon fades and droops, the plant dries and sheds its leaves; and were not some means adopted to save their aromatic treasures in all their vitality and strength, we should be left, especially in northern climes, entirely deprived of "sweet smells" for many a long dreary month. To the art of perfumery we are indebted for this miracle, and for reviving in the middle of winter the enjoyments of the floral season; for, as Shakespeare says:—

> "Then were not Summer's distillation left,
> A liquid prisoner pent in walls of glass,
> Beauty's effect with beauty were bereft,
> Nor it, nor no remembrance what it was.
> But flowers distill'd though they with winter meet,
> Leese but their show; their substance still lives sweet."

The origin of perfumery, like that of all ancient arts, has been the subject of great controversy. Some assert it took its birth in Mesopotamia; others in Elam or ancient Persia, others again in Arabia; which has long enjoyed and still retains the name of the "land of perfumes." It is, however, certain that the first perfumes were obtained by a combustion of aromatic woods and gums (hence the name *per fumum*, "through smoke") and that the first use primitive nations made of them was to offer them on the altars erected to their gods, perhaps with the mystic idea that their prayers would reach them sooner wafted on the blue wreaths of smoke, or for the less poetical purpose of counteracting the smell of the flesh burned in their sacrifices. Modern incense derives its sweet balsamic smell from benzoin (*Styrax benzoin*), which also forms one of the chief ingredients in pastilles and fumigating papers.

The holy incense mentioned in the Exodus as having been prepared by Moses, consisted in equal parts of stacte, onycha, galbanum, and frankincense. Stacte is a kind of myrrh; onycha, a sort of shell found in the Red Sea; galbanum, an aromatic balsam; and frankincense, the gum of the *Boswellia thurifera*. I have here a table of all the perfumes known and used by the ancient Jews, amongst which you will find the celebrated spikenard, which Sir W. Jones has proved beyond a doubt to be the *Valeriana Jatamansi*.

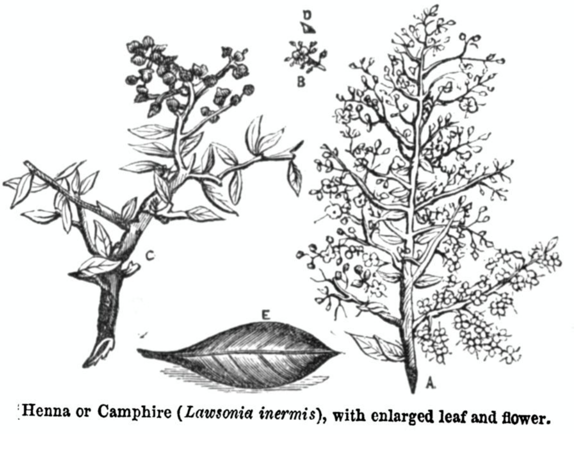
PERFUMES MENTIONED IN HOLY WRIT AS BEING KNOWN AND USED BY THE ANCIENT JEWS.

Aloes (*Aloexylum agallochum*).
Balm of Gilead (*Amyris gileadensis*).
Calamus (*Calamus aromaticus*).
Camphire or Henna (*Lawsonia inermis*).
Cassia (*Laurus cassia*).
Cinnamon (*Cinnamomum verum*).
Frankincense (*Boswellia thurifera*).
Galbanum (*Opoidia galbanifera*, or, perhaps, *Styrax Benzoin*).
Onycha (a shell) (*Onyx*).
Saffron (*Crocus sativus*).
Spikenard (*Valeriana Jatamansi*).
Stacte or Myrrh (*Balsamodendron myrrha*).

The first mention of perfumes made from flowers we find in Homer, who often speaks of rose oil, ῥόδινον ἔλαιον, which was probably obtained by infusing roses in oil. The Romans likewise used many perfumes, in the shape of oils, pastes, or powders, into which flowers and plants were incorporated.

Distillation is supposed to have been invented by Avicenna, an Arabian physician, who flourished in the 11th century, and who was the first to produce that deli-

Frankincense (*Boswelia thurifera*).



Henna or Camphire (*Lawsonia inermis*), with enlarged leaf and flower.

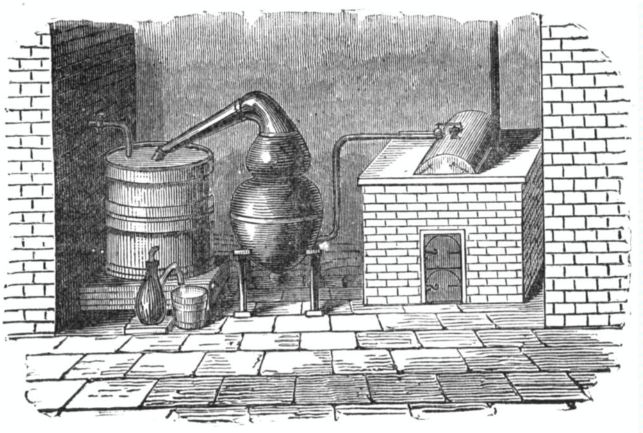
cious liquid called rose-water. I have here an Arabic manuscript of the 12th century, treating of medicine and perfumery, which at that time were combined in one, and containing, perhaps, the first illustration of a still, which was then of very rude construction.

Some centuries later, as Noorjehan Begum, the favourite wife of Jehan-Geer, was walking in her garden, through which ran a canal of rose water, she remarked a few icy particles floating on the surface; they were carefully gathered and found to possess an intense and delightful fragrance. This is given by Lieut.-Col. Polier as the origin of the far-famed otto of roses, which still sells in India for 60 rupees, or £6, per ounce.

Various ottoes or essential oils are now made in India from native fragrant flowers, principally at Ghazepore, on the banks of the Ganges. Besides the rose, they distil several sorts of jasmine, the pandang (*Pandanus odoratissimus*), the champac (*Michelia champaca*), the kurna (*Phœnix dactilifera*), the bookool or maulsari (*Minusops elengi*), and the blossoms of the henna (*Lawsonia inermis*), the leaves of which are largely used by Eastern women for imparting a rosy tint to their fingers, the palms of their hands, and the soles of their feet. These essential oils are made in very primitive clay stills; the distillate is left to stand over night in open vessels, and the oil is skimmed off in the morning. They would be very beautiful if they were not spoiled by the admixture of sandal-wood shavings, which facilitated distillation, but give them all the same heavy flavour.

There are four means in use among modern European perfumers for extracting the aroma from fragrant substances: distillation, maceration, absorption, and expression.

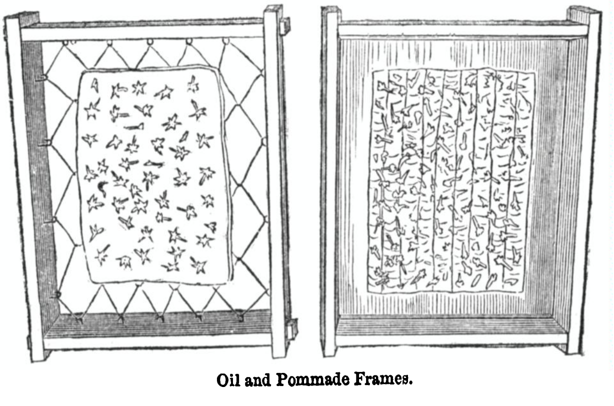
Distillation, which is applied to plants, seeds, barks, woods, and a few flowers, consists, as you all probably know, in placing the substance from which the scent is to be extracted in a copper vessel called a still, with enough water to cover it. Heat is applied, and the steam generated, which, impregnated with the fragrant molecules, passes through the head of the still into the worm, a coiled pipe placed in a tub, where it becomes condensed by means of the surrounding water, which is constantly kept cool, issues in liquid form at the tap, and flows into the recipient. If sufficiently loaded with aroma it then separates into two parts, the most concentrated of which, called the essential oil, collects either on the surface or at the bottom, according to its specific gravity. It is then decanted, and the water used again for distilling, unless it is of sufficient value in itself to be saved, as is the case with rose and orange flower-water. The recipient you see here is called a florentine recipient, from its having been first used at Florence, where flower distilleries still exist. It is constructed in such a way as to allow the water to escape whilst retaining the essential oil.



Steam Still.

A great improvement has been lately effected in distillation, which consists in suspending the fragrant substance on a sieve in the still, and causing a jet of steam to pass through. This operation produces a finer essential oil than by allowing the substances to be steeped in water, as it only carries off the most delicate part of the aroma without dissolving the bitter principles frequently residing in the basis.

The fragrant principles of all aromatic plants may be extracted by distillation, in the shape of essential oil; in fact, it exists ready formed in many of them, contained in minute vesicles, as you may see by bruising a thyme or rosemary



Oil and Pommade Frames.

leaf. Such is not the case with flowers; the aroma they possess, with a very few exceptions, is so fugitive that it would become destroyed in the process. In that case maceration or absorption is resorted to. Maceration consists in steeping flowers in a bath of hot grease, letting them infuse for some time, and renewing them until the grease is completely saturated. This grease, which is called *pommade*, is then submitted to strong pressure in horsehair bags. Oil is also perfumed in the same way, but requires less heat. This process is applied to rose, violet, cassie, jonquil, and orange flowers, but for more delicate flowers, such as jasmine and tuberose, the absorption, or *enfleurage* system, is employed. Purified grease is spread in a thin layer on a pane of glass mounted in a wooden frame or sash; fresh flowers are strewed over this grease, and renewed every morning; at the end of two or three weeks this grease or pommade acquires the scent of the flower in a high degree. Perfumed oil is made in the same way by substituting a wire bottom to the frame, and spreading on it a thick cotton cloth, steeped in the finest olive oil, which is pressed out of it after complete saturation. These frames are piled on each other to keep them well closed.

Monsieur Séméria, of Nice, lately devised an improved sort of frame for the *enfleurage* of jasmine. Instead of laying the flowers on the grease, he places them on a fine net mounted on a separate frame; this net is introduced between two glass frames, covered on each side with grease. The whole series of frames is enclosed in an air-tight recess, and all that is required is to draw out the nets every morning, and fill them with fresh flowers, which give their aroma to the two surfaces with which they are in contact. This saves the waste resulting from having to pick out the old flowers.

Mr. Piver, the eminent Parisian perfumer, has likewise invented a very ingenious pneumatic apparatus for making these pommades. It consists in a series of perforated plates, supporting flowers placed alternately with sheets of glass overlaid with grease, in a chamber through which a current of air is made to pass several times, until all the scent of the flowers is carried into the grease.

These two processes of maceration and absorption are founded on the affinity which fragrant molecules possess for greasy bodies, becoming fixed into them more readily than into any other. Thus the aroma of flowers is first transferred to these pommades, which are made afterwards to yield it to alcohol, whilst the latter, if placed in direct contact with the flowers, would not extract it from them. These alcoholic extracts form the basis of the finest perfumes, as they possess the true scent of the flower in all its freshness and delicacy. The best are made from pommades, those made from oil retaining a slightly oily flavour which is not agreeable.

M. Millon, an eminent French chemist, discovered another mode of extracting the aroma of flowers by placing them in a percolating apparatus and pouring over them sulphuret of carbon or ether. The liquid is then placed in a still, the sulphuret of carbon or ether evaporates, and leaves a dry waxy residue, which possesses the aroma of the flower in its most highly concentrated form. This process has not yet received a practical application owing to the expense attending it, as it requires an immense quantity of flowers to make a single ounce of these concrete essences. It is, however, very interesting, as an illustration of the absolute imponderability of perfumes, for although this substance appears at first sight to be the solidified principle of scent, if you treat it several times with alcohol it loses all its fragrance, but not an atom of its weight.

(*To be continued.*)

TECHNICAL TRAINING OF ARTISANS.

The following account of the Belgian Government Institution for the Technical Instruction of Artisans has been prepared by Mr. Oliver Le Neve Foster, from documents collected by Mr. T. Twining, in pursuance of the inquiry adverted to in the *Journal* for January 13th, 1865, p. 129:—

The Industrial Schools of Belgium are ten in number, namely—the Industrial School of Bruges, the Industrial School of Gand, the School of Arts and Trades at Tournay, the Training School of Soignies, the Industrial School of Liège, the School for Workmen at Verviers, the School for Industrial Drawing and Weaving at Verviers, and the Industrial Schools of Huy and Seraing. Amongst these Industrial Schools may be included the Higher Institution of Commerce of Antwerp, although it differs from them essentially.

With the exception of the Schools of Gand and Liège, these institutions are of recent date. The State in general has had some share in the expenses of their establishment. Although Government gave some aid every year to the expenses of these schools, yet it did not interfere at all in a direct manner in their management till 1859, and till then left to the communes the nearly exclusive guardianship of the high interests belonging to these establishments. But from that time they were reorganised completely by Government.

The instruction is free, except at Antwerp. Those only are admitted to the schools who are under a fixed age, and who have passed a preliminary examination, showing them to possess a certain general knowledge, such as is obtainable in the higher classes of elementary schools; but there are also evening classes for adults which serve, if needed, as preparatory schools.

Each establishment is under the direction of a managing committee. Its staff consists of a director, professors, and one or more inspectors named by the common council and approved by the Minister of the Interior. The committee fixes the hours of the classes, exercises a general supervision over the studies and discipline, and sends an annual report on the state of the school to the Minister of the Interior. The director is usually chosen from amongst the professors; he is entrusted with the superintendence of the studies and the carrying out of the regulations with regard to the teaching and discipline.

The Industrial School of Bruges (*l'Ecole Industrielle de Bruges*) was founded in 1853; it is annexed to the Academy of the Fine Arts, and is placed under the direction of the parochial Board. Its object is to initiate young artizans into that knowledge which in general is most indispensable for arts and trades. The instruction comprises elementary mathematics, mechanics, physics, and chemistry in its applications to manufactures and drawing. It is of an elementary and at the same time practical nature, and lasts about three years for the whole course.

The classes are so arranged that the pupils of both schools may follow them in common. The pupils of the Academy receive at the industrial school the theoretical lessons necessary for forming good workmen; at the Academy they receive the instruction in drawing which relates to industrial art.

The government of the school is in the hands of a committee composed of six members, two named by the parochial board, two by the existing deputies of the province, and two by the Minister of the Interior.

The Industrial School of Gand (*l'Ecole Industrielle de Gand*).—Under this name are united in one Institution the industrial school and the school for industrial designing and weaving of this town. The first of these establishments was founded previously to 1830, and was governed by a code of regulations, bearing the date of 27th November, 1833. The latter was instituted in 1852.

The new regulations decided on by the parochial board and approved of by the Minister of the Interior, bearing the date of 26th October, 1860, established the manner in which these two Institutions were to be governed.

The classes of the two Institutions were united and made to include elementary algebra and geometry, descriptive geometry, plan and ornamental drawing, the elements of physics and industrial mechanics, weaving, the technology of textile fabrics, chemistry, and industrial economy.

The classes are conducted both in French and Flemish, and are extended over a period of four years. The classes are public and free, with the exception of those for drawing and weaving. The number is, on an average, 900, who follow one or more courses of lectures in different branches, but principally in industrial mechanics. It is worthy to be noticed that the majority of the professors at this school are former pupils of the classes. This circumstance is perhaps not without its influence on the practical results which this Institution has produced. These results are manifold. Thus, as to the pupils themselves, almost all of whom received their education at the free parochial school, they are now to be seen at the head of almost every industrial workshop, some as the owners, the majority as directors and foremen, and it is only by an exception, which is becoming rarer from day to day, that one meets anywhere a foreign foreman. As to the local industry, the results are not less striking.

THE SCHOOL OF ARTS AND TRADES OF TOURNAY (*l'Ecole d'Arts et Métiers de Tournay*) was opened in 1841, for the purpose of perfecting the manufactures of the town of Tournay, and for forming good foremen and workmen. Under the old organisation, the pupils paid annually the sum of £10 (250 fr.), for which they were boarded, lodged, clothed, received a certain elementary instruction, and were taught a trade.

By the decree of the 1st October, 1860, this establishment has been quite reorganised, and everything has been taken away from the new institution which was contrary to what it was really designed for, namely, to its being an establishment for the technical teaching of the working classes. Thus, the boarding-school has been suppressed, and in order to render the school perfectly industrial in character, public evening classes have been formed, which all workmen and apprentices are allowed to attend gratuitously.

The pupils receive technical instruction in the workshops.

Before the reorganisation took place there were four workshops in the school — the building workshop, the workshops for cap-making, copper-smiths' work, and weaving. The two latter have been discontinued, as they afforded no good results. By way of compensation for this, the workshop for cap-making has been notably developed and raised to perfection. At the same time the stock of tools for the workshops for building machines has been completed.

The theoretical instruction given at the school consists of arithmetic, elementary geometry, physics, chemistry and mechanics, and mechanical drawing. The budget of the school is as follows.—

A. Receipts.

1st. The subsidy of the commune.

2nd. The subsidy of the province and the state.

3rd. Its produce.

B. Expenses.

1st. The salaries.

2nd. The money necessary for the keeping in repair and the improvement of the apparatus for teaching, and the expenses of the distribution of the prizes.

3rd. The expenses of warming and lighting.

4th. Additional expenses.

THE INDUSTRIAL SCHOOL OF LIEGE (*l'Ecole Industrielle de Liége*) was first erected by some private individuals during the latter years of the union with Holland. It preserved the character of a private establishment till 1852, when the Commune of Liège, having recognised its utility, admitted it among the communal establishments, and determined to reorganise it, which was accordingly done in 1860.

The instruction comprises elementary mathematics and descriptive geometry in their applications to manufactures, physics, elementary and applied mechanics, chemistry, drawing (particularly that applied to manufactures), and hygiene. It is given by six professors, one of whom is the director. The classes are held every evening from seven to nine, and are gratuitous. There is likewise a preparatory section, the classes of which are also held in the evening, and a special class for stokers. The duration of the studies is three years. No pupil can be admitted who is less than fourteen years old, and who has not undergone satisfactorily a preliminary examination in reading, writing, grammar, arithmetic, and the elements of drawing. The number of pupils varies from two to three hundred. The new organisation which it has just received will probably add much to the advantages which the manufacturers of Liége derive from this establishment.

The budget of this school is of a similar nature to that of the last.

The remaining industrial schools of Belgium, which I have not noticed, are of a similar character to the above-mentioned ones; the subjects taught there are almost exactly the same, except, that at the school of Soignies the theory of stone-cutting and modelling is taught, and that at the school of Seraing the pupils learn, among other subjects, the working of coal mines.

Amongst the educational establishments for the improvement of the working classes, perhaps the most important are the apprentice workshops (*les ateliers d'apprentissage*), a good account of which is given by M. de Grave in his "Notice sur les Ateliers d'Apprentissage dans les Flandres."* He states that the principal employment of the working classes in Flanders was weaving by hand, but when machine weaving was introduced into England, a great part of the business of the Flemish weavers was taken away from them.

By a fatal coincidence, too, just at the moment when a trade which had seemed inherent in the soil of Flanders was being taken out of the hands of a quarter of a million of workmen, a potato famine and an epidemic of typhus fever added their horrors to the general distress. In order to furnish a mode of gaining a livelihood to the women spinners who had been thus deprived of all means of subsistence, there were instituted in nearly all the communes of Flanders, by means of pecuniary aid from Government, manufacturing schools, in which women and girls, under the superintendence of skilled mistresses, were taught embroidery, glove-making, sewing, knitting, and especially lace-making of all kinds. But it was not only spinning by hand that thus became lost to Flanders as a branch of industry, but also hand-weaving as then carried on. The weavers had never produced but one kind of work, as they had always been certain of being able to dispose of it advantageously. Their tools had remained the same for ages, and hence they were unable to struggle with success against the more perfect machinery, then introduced into Ireland.

This being the state of the case, it became necessary for Government to take measures for the protection of weaving.

In order to carry out the designs of Government the apprentice-workshops were introduced. The organisation and the carrying on of establishments of this class was necessarily economical. The branches of industry exercised there, were placed completely under the management of those masters (*industriels*) who were willing to undertake it. Government reserved itself solely the right of watching over these establishments and seeing the execution of contracts carried out.

The superintendence was exercised by the provincial inspector of workshops, and by a special committee appointed for each workshop, and composed as much as possible of persons of the neighbourhood acquainted with industry. In the contracts relating to these workshops, it was always expressly stipulated that the contractors should give the persons who desired to devote themselves to such work every necessary help, should initiate them into the modes of working, and authorise them to imitate the machines and their products.

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* Congrès International de Bienfaisance de Londres. Session de 1862. Tome I.

The necessary aid for this was furnished by the Government, the province, the communes, and the *bureaux de bienfaisance.*

The aid was not granted to place the contractor in a position to manufacture stuffs at a cheaper rate, but solely to indemnify him in case of those losses which every new enterprise entails.

The public intervention in the expenses of these workshops was, from the beginning, regarded as of a temporary nature. By degrees it was withdrawn, and at present there is not one workshop which receives aid from Government.

Besides these workshops of which we have just spoken, there were erected a considerable number of free apprentice workshops (*ateliers d'apprentissage libres*), that is to say, workshops in which the masters, without being bound by any engagement, furnish the thread, and pay a price agreed upon for the weaving; so that the preference is always given to the master whose conditions are most favourable to the apprentices. The greater part of these institutions are still in existence. They were erected in places where it was judged expedient, not to introduce new manufactures, but solely to make more general the use of a more perfect system of machines, to develope the aptitude of the working classes, and to facilitate the apprenticing of young workmen.

In 1860, an inquiry into the state of these workshops was made, in order to prove the propriety of their being continued or discontinued. After the question had been entered into at length in the Chamber of Deputies, the Minister of the Interior, M. Rogier, made the following statement:—"You have heard the evidence, and I think at present that no one can for a moment dream of the suppression of the apprentice workshops. Everywhere, in about eighty communes, and with but three or four exceptions, they are defended with inconceivable energy. All the communes entreat Government not to take away its benefiting hand, and state the great results which have been obtained by these institutions, for the complete suppression of mendicity and vagabondage, for the progress of morality and the welfare of the people; all, almost without exception, express this opinion in the most energetic terms, and myself, I avow it, I did not expect such a demonstration; I did not expect such a unanimous adherence; I scarcely believed that the institution of apprentice workshops could have produced such considerable benefits."

The apprentice workshops are established in buildings either constructed for this purpose by the communes or hired.

A machine for hand weaving, of as perfect a nature as possible, is placed there.

The direction is entrusted to an administrative committee, appointed, on the advice of the communal administration, by the governor of the province. Instructors are appointed by the governor of the province, for the purpose of teaching professionally the apprentices. It is necessary for every instructor to be able to read, write, calculate, and teach the apprentices all the practical and theoretical details of the branches of industry exercised in the workshop. The apprentices are instructed in everything that forms part of the art of the weaver.

A salary is granted to the apprentices, varying according to their ability and the stipulated conditions with the masters who furnish the workshop with work.

A deduction of between five and ten per cent. on the salary is made, and the amount of the deductions goes to furnish the apprentice with tools necessary for his trade, when he leaves the workshop. Elementary instruction for two hours a day is given to the apprentices.

Fine Arts.

Distribution of Works of Art in France.—In addition to the pictures and statues recently added to the collection of works by living artists in the gallery of the Luxembourg, the Minister of the Beaux Arts has just distributed an immense number of works amongst the museums and churches in the various departments of France, as well as in Algeria and the colonies. The number of local museums that have thus acquired additions to their art treasures amounts to more than a hundred, and one or more churches in almost every department have received donations.

Statue of Trajan.—It is said that a magnificent marble statue of the Emperor Trajan has been discovered during excavations made around the Villa Lavinia in Rome.

Exhibition at Bergen.—An artistic exhibition was opened at Bergen, Norway, on the 1st August. All the Norwegian artists have contributed, as well as many German, Danish, and Swedish painters. There are five hundred pictures in the exhibition.

Manufactures.

Working Men's Exhibition at Birmingham.—On Monday, the 28th August, there was inaugurated at Bingley Hall, Birmingham, a Working Men's Industrial Exhibition. The catalogue sets forth that there are 753 exhibitors, and the room required is 4,900 feet wall or hanging space, 3,820 feet floor space, and 3,830 feet table space. From the moment the project was mooted the artisans disposed to take part in it were warmly seconded by many of the principal manufacturers; to that circumstance no doubt much of the success attained may be attributed. The articles shown are of a very miscellaneous character. The staples of the local industry, of course, figure prominently. In stamping there are one or two wonderful specimens; of mechanism a great variety; of iron manufactures, furniture, saddlery, brass-foundry, jewellery, papier-maché, carving and gilding, there is a good display. The Rev. Dr. Miller, as chairman of the Exhibition Committee, presided at the opening, and there were present Lord Leigh, the lord lieutenant of the county, Lord Lyttelton, lord-lieutenant of Worcestershire, Archdeacon Sandford, Mr. Newdegate, M.P., Mr. D. Bromley, M.P., &c. The inaugural ceremonial was in part choral. A prize ode was performed, composed by Mr. Coombe Davies, the prize for it having been awarded by Lord Lyttelton. Thirty-two odes were sent in. The ode was set to music by Mr. Thomas Anderton. It was followed by the National Anthem. Lord Lyttelton then delivered an address, and the mayor declared the Exhibition open.

School for Watch Making.—Not long since, the French Government established a school at Cluses, in the department of the Haute Savoie, for the training of boys intended for watchmakers, with a view to the improvement of the methods employed in the trade. It was found, however, that the working classes in distant departments could not afford to send their children to the school, and pay their expenses there, and, it is said, the Minister of Commerce has instructed the prefects to lay the question before the *Conseils Généraux*, with the view to obtaining subventions in aid from the departments.

Ailanthus Timber.—In the article entitled "Hardy Silk Worms," in the *Journal* of the 18th of August, the wood of the ailanthus, or "Japan varnish tree," was spoken of as comparing favourably with that of the oak and elm. M. Raoulx, of Paris, has experimented on this wood during the last twenty-five or thirty years, and declares it to be actually superior either to oak or elm. The following is the average result arrived at by that gentleman after a great many experiments, all made under the same conditions:—

	Ailanthus.		Elm.		Oak.
Density......	0.713	...	0.604	...	0.751
Tenacity ...	32.812	...	24.867	...	19.473
Flexibility..	0.033	...	0.023	...	0.027

According to this statement, the ailanthus wood is more dense than elm though rather less so than oak; its tenacity exceeds that of elm by nearly a quarter, and of oak by full three-fifths; and it is nearly one quarter more flexible than oak, and one half more so than elm. These results are surprising when taken in connection with the fact that the tree is of very rapid growth, that the ailanthus seems to form an exception to the general rule, that the best timber is always the result of slow growth.

Commerce.

THE FRENCH SOAP TRADE, which is chiefly carried on at Marseilles, suffered considerably in 1864 from the import of pigs' fat, one of the ingredients it employs, having been much less from America than in preceding years, owing to the war, and to the import duty on olive oils from Italy being too high to permit the introduction of the article in the large quantities required, also to the duties on the oils from Genoa, Tunis, and the Levant being so arranged as to check importation. The production of soap consequently has declined, and although the population is constantly increasing, the consumption has been reduced also. In 1864, according to official returns, the amount exported was 480,025 kilogrammes less than in 1863. In the present year the falling off in exports has been greater, whilst the importation has increased.

IRISH BUTTER.—There has been a gradual diminution in the quantity of Irish butter sent to London. In the three years 1842 to 1844 it averaged 311,000 firkins per annum, while in the past three years it has not much exceeded half that quantity, though the number of milch cows in Ireland has nearly doubled. There is an increase in the quantity sent to Liverpool, but if the deliveries in the two ports are added together, it will not show a great increase. The arrivals in 1841 were 639,247 firkins; in 1861 they were 737,895; the increase is 98,648 firkins, worth about £350.000. The number of cattle in Ireland in 1841 was 1,863.116, valued at £12,110,000; in 1861 it had increased to 3,527,309, the estimated value of which was £21,172,508. The increased export of butter is equivalent to about 3½ per cent. on the capital invested, but this does not leave anything to pay rent for the ground devoted to this purpose, nor for labour.

CHINESE SUGAR.—Much extra ground has been set apart at Swatow this year for the cultivation of sugar, in consequence of the demand in the north of China for this product. The Chinese method of pressing sugar is most rude. The cane is passed between two perpendicular granite cylinders—one, being turned by oxen, gives a motion to the others by means of cogs cut in the granite, and shod with hardwood; the juice is thus expelled, and runs through a channel cut for that purpose into a large wooden tub, from which it is removed to the boiling hut closely adjoining. These cylinders are not at all firmly fixed, depending altogether upon their weight to keep them in position. A company of Europeans working a modern sugar mill might make a large profit, if the Chinese would consent to sell their crops when ready for cutting. An improved cane mill was imported by an English firm, but the natives refused to purchase or even try it.

Colonies.

FINANCIAL PROSPECTS OF QUEENSLAND.—It appears from the report of the Auditor-General on the public accounts of the past year that the deficit of £70,673, which existed at the close of the year 1863, was disposed of by being charged to the loan for immigration. The actual revenue for the year 1864 was £369,425, and the actual expenditure, including some old adjustment of accounts, £440,168, leaving a deficit approximating closely to that of the previous year, viz., £70,743. In addition to this, the revenue of 1865 is liable for the balances of votes already sanctioned by the legislature, but not yet expended, to the extent of £62,630. In land order transactions the aggregate issues for 1864 are stated to be £230,075, which have been satisfied to the extent of £133,031, leaving an outstanding liability on the 1st of January amounting to £97,026. The total liability, therefore, with which the treasurer has to deal in connection with the year 1864 is £230,399. The estimates for 1866 show an estimated revenue of £702,400, and an estimated expenditure of £670,586, the excess of receipts over payments being £31,814. These figures, however, include land order transactions. Considerable difference of opinion seems to prevail with respect to the propriety of reckoning land orders as revenue, a land order being simply an acknowledgment that the holder of it is entitled to a free grant of land. The steerage passenger gets eighteen acres and the cabin passenger thirty acres of land, but neither the one nor the other contribute either £18 or £30 to the revenue. When a selection is made the land order is cancelled, but the land so alienated is not sold, and the nominal value of it has no right to appear in the proceeds of land sales. The colony gains indirectly in exchange for its free grants of land, but it does not appear that the revenue is entitled to take credit for an immigrant's person any more than for his capital, or any other effects he may have brought with him.

THE FIRST QUEENSLAND SOLICITOR.—A Queensland journal records the fact that Mr. W. Fowles has been admitted as an attorney and solicitor to practice in the Supreme Court of Queensland—the first practitioner whose legal education has been entirely derived within the boundaries of that colony.

CINCHONA.—A writer in the *Queensland Guardian* says that the cinchona plant is indigenous in that colony. "It grows plentifully at Gayndah, and very abundantly in the Burnett district. I have seen it on the banks of the Mary river, as well as in the interior of the Wide Bay country. Visitors to Sandgate can either eat the leaves, pluck the berries, or drink the juice of the bark, which they can chip from the trees overhanging the sea. I have seen, and have now in my possession, a very excellent tincture, a homœpathic preparation, prepared by a professional gentleman in this city, which, if I have any occasion to use, I should be willing to try it on illness requiring quinine."

NEW TARIFF IN VICTORIA.—The following is a statement showing the amount of duty collected (under the old tariff) during the months of February, March, and April, 1864, as compared with the collections (under the new tariff) for the same three months of 1865, and with the amount that would have been collected on the same goods under the old tariff:—

	1864. Actual Receipts.		1865. Actual Receipts.		1865, if old tariff had been in force.
Customs	£273,940	...	£308,314	...	£302.074
Gold	26,574	...	17,684	...	26,526
	£300,514		£325,988		£328,600

Publications Issued.

TRAITÉ SOMMAIRE D'ÉCONOMIE POLITIQUE. By M. J. G. Courcelles Seneuil. (*Guillaumin and Co.*, Paris.)—A short popular treatise on political economy, by an author who has made himself a name in France by his larger works on banking, political economy, industry, and social science. The increase in the number of works of this nature marks a decided change in the habits of thought of the French people, whose attention has of late been greatly given to economical questions, whereas ten or fifteen years ago the great mass of the population had scarcely an idea that political economy was a matter in which any but the governing classes could have an interest. M. Seneuil's *work is* concise without being meagre, and treats of all the great questions of political economy and its applications, in less than three hundred pages, with that logical simplicity which is one of the happy gifts of French writers. English economists will be interested in the work from the fact that the subject with which they are familiar is treated from another point of view and under circumstances differing in many respects from those which prevail in our own country.

Notes.

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Instruction in Horticulture has been included in the normal primary school of Chartres since 1840, and forms one of its most important classes. The gardens of the school cover two hectares, or about five acres, of ground, and are appropriated in the following manner:—39 *ares* to arboriculture, 58 to the kitchen garden, 62 to wood, 20 to botany and ornamental gardening, and 20 *ares* for fish ponds. The director is a horticulturist of repute, and his assistants have all been pupils in the school. Professors attached to the model farms belonging to the Government, as at Grignon, and a few amateurs of the neighbourhood, give lectures and hold conversations at intervals. A series of meteorological instruments exist in the establishment, and daily observations are made respecting temperature, moisture, and force of the wind, and are registered with scrupulous attention. The gardens are a source of great interest to the agriculturists and amateurs of the department, and the directors have obtained a large number of medals and other awards, not only at Chartres, but also at Dreux, Châteaudun, Caen, and other places.

Mummies in Guano.—The Museum at Havre possesses several specimens of animals preserved in the guano of the Chincha islands, but much greater interest has been created by the exhibition of a human mummy found embedded in the same kind of deposit on the coast of Africa, than by all the former acquisitions of that kind in the museum. The body is in a complete state of preservation, and appears to be that of a man of Caucasian race. M. Leunier, the curator of the Museum, has carefully examined the mummies under his charge, and reports that they all exhibit, under the magnifying glass, crystals of ammoniacal salts, to which substances the preservation of the bodies is principally, if not entirely, attributed.

French Coast Telegraphic System.—Within the last few years the oceanic coasts of France have been brought into communication, by means of the electric telegraph, with the head-quarters of the four maritime commands established in that portion of the empire; the stations on the coast are also supplied with semaphores, which enable vessels to communicate by means of signals, so that the Minister of Marine is in fact in direct communication, not only with the coast, but with every vessel within signal range. These semaphores are also open to the public, so that the captain of any vessel, inward or outward bound, may send or receive news direct to or from any part of the country. In order to complete the system, however, it will require eighteen submarine cables to be laid down between the mainland and the islands dotted about the coast, and the laying of these is about to be commenced by the vessel especially devoted to that purpose by the Imperial Government, the *Dix Decembre*, which has returned from laying the Algerian cable. Amongst the coast cables to be laid immediately is that which is to unite the Isle of Ushant with the main land.

Scientific Congress at Spezia.—The Italian Society of Natural Science announces that its second extraordinary congress is appointed to take place at Spezia, on the 17th and three following days of September, under the presidency of Professor G. Capellini. The *savants* of all countries are invited to attend, and those who will take the trouble to write previously to the president will be provided with lodgings by the municipal authorities of the place. The neighbourhood of Spezia is peculiarly interesting to the naturalist, and it is expected that the meeting will be numerous and animated.

Patents.

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From Commissioners of Patents Journal, August 25th.

Grants of Provisional Protection.

Anti-inflammable starch—1946—T. Pepper.
Candle-manufacture—2085—J. H. Johnson.
Crinolines—1922—J. Leetch.
Eyelet-making machines—2079—W. E. Newton.
Fibrous materials, apparatus for treating—1952—H. Sherwood.
Furnaces—2105—J. F. Boetius.
Gas, carburetting—2095—H. Woodward.
Holders or files for holding letters or music—2097—F. Brampton.
Jewellery, articles of—2103—R. C. Lilly and J. Sunderland.
Knives, apparatus for cutting scales of—1988—W. Singleton.
Lawn mowing machines—2119—J. B. Brown.
Liquids, apparatus for ejecting and spreading—1044—G. A. Montenat.
Looms—2073—J. and H. Ingham and J. Broadley.
Looms—2091—W. Bullough.
Looms—2115—W. Gadd and J. Moore.
Metal pins—1920—H. W. Hart.
Microscopes and telescopes, mounting—2075—C. J. R. Jahns.
Photograpy on copper—1984—F. R. Wells.
Railway chairs—2099—W. F. Henson.
Safes, &c. (fireproof) fixing—2081—P. C. Kjellberg.
Table-salt, manufacture of—2087—H. Jee.
Ventilators—2111—J. Billings.
Wool, cotton, &c.—2089—J. Tatham and J. Smith.
Yarns, &c., machinery for bleaching and dyeing—2113—J. Smith and W. Schofield.

Inventions with Complete Specifications Filed.

Lucifer matches—2153—G. C. Dennis.
Steam engines—2130—J. Stevenson.

Patents Sealed.

547. C. Ching.
553. J. Blackie.
558. G. Lauder.
560. A. Davy.
560. W. B. Dalston.
566. J. Hartshorn and W. Redgate.
567. S. Whiting.
572. G. H. Barth.
573. W. Holiday.
579. A. T. Godfrey.
585. S. Chatwood.
592. R. Johnson.
602. L. Thomas.
638. W. Clark.
639. W. Clark.
659. W. Clark.
1019. R. Fergusson & W. Ralston.
1494. H. Monier.

From Commissioners of Patents Journal, August 29th.

Patents Sealed.

577. J. Dodd.
578. W. E. Kochs.
580. T. Horton and D. S. Price.
589. P. Rothwell.
591. C. Rahn.
597. D. and J. Manwell.
599. R. A. Brooman.
610. L. Le Chev. Cottam.
611. R. A. Brooman.
612. W. Clulow.
622. S. and W. Smith.
637. A. E. A. Aubert and G. E. M. Gerard.
636. L. Perkins.
642. F. Tolhausen.
665. W. D. Allen.
668. G. F. Ansell.
670. J., E. G., and C. H. Freeman.
687. J. Garelly.
718. L. Gantert.
943. C. D. Young.
1104. D. Greig.
1325. G. and G. W. Simmons.
1392. W. E. Newton.
1623. G. E. Way.

Patents on which the Stamp Duty of £50 has been Paid.

2347. R. Harrington.
2465. J. H. Johnson.
2467. W. A. Richards.
2374. R. Sims.
2391. W. Husband.
2410. J. H. Johnson.
2411. J. Meyer.
2511. A. E. H. B. Butler.
2370. A. Crichton.
2379. R. A. Brooman.

Patent on which the Stamp Duty of £100 has been paid.

1950. J. Ireland